The central theme of this thesis is the theory of point processes on linear networks, in particular two kinds of the network K-function. The first part is devoted to the theory of stationary point processes in the plane, including the K-function and its estimator. The second part is concerned with the theory of point processes on linear networks. There is defined the Okabe–Yamada network K-function and its estimator, the geometrically corrected network K-function, including its estimator, and there are explained their theoretical properties. In the third part we examine the ability of these two kinds of the network K-function to detect clustering or regularity in point processes on linear networks. There is explained the envelope test, the refined envelope test and the deviation tests. The software environment R with library `spatstat` is used for simulations.